

LISTING OF THE CLAIMS

1. (Cancelled).
2. (Previously Presented) A silicon controlled rectifier comprising:  
a substrate;  
an epitaxial layer of a first conductivity type formed on the substrate, the epitaxial layer having a top surface and a dopant concentration;  
a first semiconductor region of a second conductivity type formed in the epitaxial layer, the first semiconductor region contacting the top surface of the epitaxial layer;  
a second semiconductor region of the first conductivity type formed in the epitaxial layer, the second semiconductor region contacting the top surface of the epitaxial layer, being spaced apart from the first semiconductor region, and having a dopant concentration greater than the dopant concentration of the epitaxial layer;  
a first polysilicon region that contacts the top surface of the epitaxial layer over the first semiconductor region, the first polysilicon region having the second conductivity type; and  
a second polysilicon region that contacts the top surface of the epitaxial layer over the second semiconductor region, the second polysilicon region being spaced apart from the first polysilicon region and having a region of the second conductivity type.
3. (Original) The rectifier of claim 2 and further comprising a third semiconductor region formed in the second semiconductor region, the third semiconductor region having the second conductivity type.

4. (Original) The rectifier of claim 3 and further comprising a third polysilicon region that contacts the top surface of the epitaxial layer over the first semiconductor region, the third polysilicon region having the first conductivity type and being spaced apart from the first and second polysilicon regions.

5. (Original) The rectifier of claim 4 wherein the first and third polysilicon regions are electrically connected together.

6. (Original) The rectifier of claim 3 wherein the second semiconductor region has a high dopant concentration region and a low dopant concentration region that contacts the high dopant concentration region.

7. (Original) The rectifier of claim 6 wherein the second polysilicon region contacts the low dopant concentration region.

8. (Original) The rectifier of claim 6 and further comprising a pn junction that lies between the low dopant concentration region and the second polysilicon region.

9. (Previously Presented) The rectifier of claim 6 wherein a portion of the second polysilicon region is spaced apart from the epitaxial layer.

10. (Original) The rectifier of claim 6 wherein the third layer of polysilicon has a dopant concentration that is greater than a dopant concentration of the high dopant concentration region.

11. (Original) The rectifier of claim 6 wherein the third layer of polysilicon has a dopant concentration that is substantially equal to a dopant concentration of the high dopant concentration region.

12. (Original) The rectifier of claim 3 and further comprising a buried region of the first conductivity type, the buried region contacting the epitaxial layer.

13. (Original) The rectifier of claim 6 and further comprising:  
a layer of isolation material formed over the epitaxial layer;  
a first contact formed through the layer of isolation material to make an electrical connection with the first polysilicon region;  
a second contact formed through the layer of isolation material to make an electrical connection with the second polysilicon region; and  
a third contact formed through the layer of isolation material to make an electrical connection with the third polysilicon region.

Claims 14-18 (Cancelled).

19. (Previously Presented) A silicon controlled rectifier formed in a semiconductor material, the semiconductor material having a top surface, the silicon controller rectifier comprising:

a first region of the semiconductor material, the first region having a first dopant concentration, contacting the top surface, and having a first conductivity type;

a second region of the semiconductor material, the second region contacting the top surface and the first region, and having a second conductivity type; and

a third region of the semiconductor material, the third region having the first conductivity type, being spaced apart from the second region, and having a plurality

of areas, the plurality of areas including a first area and a second area, the first area contacting the top surface and the first region, and having a second dopant concentration greater than the first dopant concentration, the second area contacting the first area, being spaced apart from the first and second regions, and having a third dopant concentration greater than the second dopant concentration of the first area.

20. (Previously Presented) The silicon controlled rectifier of claim 19 and further comprising a fourth region of the semiconductor material, the fourth region having the second conductivity type, contacting the top surface, the first area, and the second area, and being spaced apart from the first region.

21. (Previously Presented) The silicon controlled rectifier of claim 20 and further comprising a fifth region of the semiconductor material, the fifth region contacting the top surface and the second region, having the first conductivity type, being spaced apart from the first region, and having a dopant concentration greater than the first dopant concentration.

22. (Previously Presented) The silicon controlled rectifier of claim 21 and further comprising:

a first polysilicon region that contacts the top surface over the second region, the first polysilicon region having the second conductivity type; and

a second polysilicon region that contacts the top surface over the third region, the second polysilicon region being spaced apart from the first polysilicon region and having a region of the second conductivity type.

23. (Previously Presented) The silicon controlled rectifier of claim 22 wherein the second polysilicon region contacts the fourth region.

24. (Previously Presented) The silicon controlled rectifier of claim 23 and further comprising a third polysilicon region that contacts the top surface over the fifth region, the third polysilicon region being electrically connected to the first polysilicon region, having the first conductivity type, being spaced apart from the first and second polysilicon regions.

25. (Previously Presented) The silicon controlled rectifier of claim 20 wherein the third region has a third area that has a fourth dopant concentration greater than the third dopant concentration of the second area, the third area contacting the second area and being spaced apart from the first area.

26. (Previously Presented) The silicon controlled rectifier of claim 19 and further comprising:

a first polysilicon region that contacts the top surface over the second region, the first polysilicon region having the second conductivity type; and

a second polysilicon region that contacts the top surface over the third region, the second polysilicon region being spaced apart from the first polysilicon region and having a region of the second conductivity type.